GANNETT FLEMING
ENVIRONMENTAL ENGINEERS, INC.

VILLAGE OF CROSS KEYS
WEST QUADRANGLE, SUITE 417
BALTIMORE, MD 21210
(301) 433-8832

May 12, 1989

Ms. Colleen Walling
U.S. Environmental Protection Agency
Central Regional Laboratory
839 Bestgate Road
Annapolis, Maryland 21401

RE: SAS Request, Army Creek - New Castle, DE Site
EPA Contract No. 68-W8-0037

Dear Ms. Walling:

Enclosed, please find eight (8) SAS requests for the Army Creek, New Castle, DE site.

Please feel free to contact me if you have any questions.

Very truly yours,

GANNETT FLEMING ENVIRONMENTAL ENGINEERS, INC.

Emily J. Olds

Emily J. Olds
Army Creek Sample Coordinator

EJO:ijk

Enclosures

cc: E. Newman
R. Stecik
L. Johnson
G. Zimmerman
D. Sheridan
L. Fiorucci
C. Yen

cc: GF: 25680

AR300506

U.S. Environmental Protection Agency
CLP Sample Management Office
209 Madison Street, Alexandria, VA 22313
PHONE: (703) 557-2490 or FTS 557-2490

SAS Number

SPECIAL ANALYTICAL SERVICES
Regional Request

☐ Regional Transmittal ☐ Telephone Request

A. EPA Region and Client: EPA Region III

B. Regional Representative: Colleen K. Walling

C. Telephone Number: (301) 266-9180

D. Date of Request:

E. Site Name: Army Creek Landfill
New Castle County, DE

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested:

   Quick turnaround analysis of 10 groundwater samples for Sulfide. Use Standard Methods 427B and 427D (attachment) for this analysis. Samples will arrive preserved with zinc acetate and sodium hydroxide.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   10 low concentration groundwater samples for sulfide plus 1 duplicate, 1 blank, and 1 matrix-spiked sample for a total of 13 work units.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

   Superfund RI/FS Enforcement
   Account Number:

   SAS Approved By:

SAS Approved By:

4. Estimated date(s) of collection:

   June 26, 1989 through July 7, 1989.

5. Estimated date(s) and method of shipment:

   June 26, 1989 through July 7, 1989.

   Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of July 10, 1989. Friday shipments are a possibility.

6. Approximate number of days results required after lab receipt of samples:

   Data packages due 14 days from date of receipt of the last sample. Sulfide must be analyzed within 7 days of VTSR.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

   Sulfide- 427B,427D- APHA-AWWA-WPCF, 1985. "Standard Methods For the Examination of Water and Wastewater" 16th ed.

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

   Lab will perform filtration of samples and analysis of filtrates as described in Standard Methods 427B paragraph b.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

   The cover page and all sample report forms must be labelled with both SAS and Task numbers.

   Raw data, calculation, data sheets, blank results, duplicate results, Chain-of-Custody forms, SAS Request forms, calibration curve data, copy of SAS packing list, copy of airbill, and copy of Lab analyst's logbooks.

10. Other (use additional sheets or attach supplementary information, as needed):

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.
Phone: (301) 433-8832

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
Sulfide	1 mg/L	± 10%

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Blanks	1/20	Below Method Detection Limit
Duplicates	1/20	± 10% RPD
Matrix Spike	1/20	95% Confidence Interval

14. Action Required if Limits are Exceeded

Blank- If blank values exceed MDL, after appropriate action to reduce blank to less than MDL, repeat all samples and QC.

Duplicate- If duplicate is out of limits, reanalyze duplicate pair. If still outside range, repeat analysis of all samples and QC once more.

Matrix Spike- If matrix spike is outside limits, reprepare and reanalyze all associated samples.

15. Request prepared by: Emily Olds

Date: May 10, 1989

16. Request reviewed by (CRL use only):

Date:

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.

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1. General description of analytical service requested:

   Quick turnaround analysis of 10 groundwater samples for Ammonia and total Kjeldahl nitrogen. Use Standard Methods 417A (distillation) followed by Standard Methods 417E (Ion-Selective Electrode) for Ammonia, and Standard Methods 420A (Digestion and Distillation) followed by Standard Methods 417E for Total Kjeldahl nitrogen. A mid-point check standard and a certified ammonia reference sample obtained by the lab must be run every 10 samples.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   10 low concentration groundwater samples for above plus 1 field duplicate, 1 field blank and 1 matrix-spike sample for a total of 13 work units. See items 6, 7, 8, 9, 10, 11, 12, 13 and 14 for details.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

Superfund RI/FS
Account Number:

SAS Approved By:

4. Estimated date(s) of collection:

June 26, 1989 through July 7, 1989.

5. Estimated date(s) and method of shipment:

June 26, 1989 through July 7, 1989

Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of July 10, 1989. Friday shipments are a possibility.

6. Approximate number of days results required after lab receipt of samples:

Data packages must be delivered within 14 days of date of receipt of the last sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

Ammonia- 417, 417E-APHA-AWWA-WPCF, 1985. "Standard Methods For the Examination of Water and Wastewater 16th ed.
Total Kjeldahl Nitrogen- 420A, 417E-APHA-AWWA-WPCF, 1985 "Standard Methods For the Examination of Water and Wastewater" 16th ed.
Determine organic nitrogen by difference of total Kjeldahl Nitrogen and Ammonia.

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

Include a five point calibration curve for ammonia in the range of the samples undergoing analysis. Separate curves will be needed for ammonia and total Kjeldahl nitrogen analysis. Run a mid-point check standard every 10 samples. Lab must obtain and report a certified reference standard for ammonia with its acceptance limits, lot number and SOW, and include a copy of the manufacturer's specifications with data deliverability.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

Each individual task as awarded must be submitted in a separate data package. The cover page and all sample report forms must be labelled with both SAS and Task numbers, and EPA sample numbers as they appear on Chain-of-Custody and CLP paperwork.

All raw data, calculations, data sheets, blank results, duplicate results, lab and EPA Chain-of-Custody forms, SAS Request forms, standardization data, calibration curve data, external certified standard data, copy of SAS packing list, copy of airbill, and copy of lab analyst's logbooks with date of analysis for each run and each parameter analyzed.

10. Other (use additional sheets or attach supplementary information, as needed):

Document all problems, troubleshooting and problem resolution in the case narrative.

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.

Phone: (301) 433-8832

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
Ammonia	0.03 mg/L	± 20%
Total Kjeldahl nitrogen	0.03 mg/L	± 20%
Organic nitrogen	0.03 mg/L	± 20%

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Blanks	1 set for each parameter prepared	Below Method Detection Limit
Duplicates	1/20 per parameter	± 10% RPD
Matrix Spike	1/20 per parameter	95% Confidence Interval
Externally Certified Standard Performance	1/10 samples for ammonia	95% Confidence Interval
Midrange Check Standard	1/10 samples per parameter	± 10% RPD

14. Action Required if Limits are Exceeded

Blank- If blank values exceed MDL, after appropriate action to reduce blank to less than MDL, repeat all samples and QC.

Duplicate- If duplicate is out of limits, reanalyze duplicate pair. If still outside range, repeat analysis of all samples and QC once more.

Check Standard- If midrange check standard is outside limits, reprepare and reanalyze the check standard and all samples between check standards that exceed limits.

Matrix Spike- If matrix spike is outside limits, reprepare and reanalyze all associated samples.

15. Request prepared by: Emily Olds

Date: May 10, 1989

16. Request reviewed by (CRL use only):

Date:

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.

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☐ Regional Transmittal ☐ Telephone Request

A. EPA Region and Client: EPA Region III

B. Regional Representative: Colleen K. Walling

C. Telephone Number: (301) 266-9180

D. Date of Request:

E. Site Name: Army Creek Landfill
New Castle County, DE

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested:

   Quick turnaround analysis of 10 groundwater samples for Total phosphorus, total acid-hydrolyzable phosphorus, Total reactive phosphorus and Total organic phosphorus. Use Standard Methods 424C, II (Sulfuric Acid-Nitric Acid Digestion) for Digestion for Total phosphorus (attachment 1); Standard Methods 424B (Acid, Hydrolysis) for Total Acid-hydrolyzable phosphorus (attachment 2); Standard Methods 424F (Ascorbic Acid) for colorimetric detection of all phosphorus components (attachment 3). A certified reference standard for total phosphorus must be obtained by the lab and run every 10 samples. A midpoint check standard must be run every 10 samples.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   10 low concentration groundwater samples for the above plus 1 field duplicate, 1 field blank and 1 matrix spiked sample (total phosphorus only) for a total of 13 work units. See items 6, 7, 8, 9, 10, 12, 13 and 14 for details.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

Superfund RI/FS Enforcement
Account Number:

SAS Approved By:

4. Estimated date(s) of collection:

June 26, 1989 through July 7, 1989

5. Estimated date(s) and method of shipment:

June 26, 1989 through July 7, 1989.

Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of July 10, 1989. Friday shipments are a possibility.

6. Approximate number of days results required after lab receipt of samples:

Data package must be delivered within 14 days from date of receipt of the last sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

Total Phosphorus 424C,II; 424F	APHA-AWWA-WPCF, 1985, "Standard Methods for the Examination of Water and Waste-Water" 16th ed.	
Total acid-hydrolyzable phosphorus	424B; 424F--	" "
Total reactive phosphorus	424F--	" "
Total organic phosphorus--see Fig 424:1 for calculation		" "

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

Include a 5-point calibration in the range of the samples undergoing analysis for each fraction analyzed by colorimetry. Lab must obtain and report a certified reference standard for total phosphorus with its acceptance limits, lot number and SOW, and include a copy of the manufacturer's specifications with data deliverables.

Note that Total acid-hydrolyzable phosphorus and Total organic phosphorus are arrived at by subtraction as shown in Figure 424:1 (attachment 4).

A midpoint check standard must be performed every 10 samples.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

Each individual task as awarded must be submitted in a separate data package. The cover page and all sample report forms must be labelled with both SAS and Task numbers.

Raw data, calculations, data sheets, blank results, duplicate results, Chain-of-Custody forms, SAS request forms, calibration curve data, external certified standard data, copy of SAS packing list, copy of airbill, and copy of Lab analyst's logbooks.

All calculations for each fraction must be provided.

10. Other (use additional sheets or attach supplementary information, as needed):

Document all problems, troubleshooting and problem resolution in the case narrative.

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.

Phone: (301) 433-8832

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
Total phosphorus	10 ug/L	± 20%
Total acid-hydrolyzable phosphorus	10 ug/L	± 20%
Total reactive phosphorus	10 ug/L	± 20%
Total organic phosphorus	10 ug/L	± 20%

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Blanks	1 set for each parameter prepared	Below Method Detection Limit
Duplicates	1/20 per parameter	± 10% RPD
Matrix Spike	1/20 per parameter	95% Confidence Interval
Externally Certified Standard Performance	1/10 samples--Total phosphorus only	95% Confidence Interval
Midrange Check	1/10 samples	± 10% RPD

14. Action Required if Limits are Exceeded

If duplicate is out of limit, reanalyze duplicate pair once more. If still out of limit, repeat analysis of all samples along with all QC samples once more. If blank or TOC certified standard is out of limit, reanalyze all samples after corrective action has been taken to reduce blank contamination to the acceptable limit. Note in narrative. If problems occur needing further resolution notify Region III.

15. Request prepared by: Emily Olds

Date: May 9, 1989

16. Request reviewed by (CRL use only):

Date:

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.

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SAS Number

SPECIAL ANALYTICAL SERVICES
Regional Request

☐ Regional Transmittal ☐ Telephone Request

A. EPA Region and Client: EPA Region III

B. Regional Representative: Colleen K. Walling

C. Telephone Number: (301) 266-9180

D. Date of Request:

E. Site Name: Army Creek Landfill Site
New Castle County, DE

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested:

Quick turnaround analysis of 10 groundwater for CLP metals TAL. Samples collected in enough containers and with adequate volume to permit analysis of all inorganics, including dissolved metals (samples filtered on-site), total metals and cyanide (both samples unfiltered).

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

10 low concentration groundwater samples for CLP Inorganics analyses (Total metals, dissolved metals and cyanide), plus 1 field duplicate and 1 field blank for a total of 12 work units. See items 6, 7, 8, 9, 12, 13 and 14 for details.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

Superfund RI/FS ENFORCEMENT
Account Number

SAS Approved By:

4. Estimated date(s) of collection:

June 26, 1989 through July 7, 1989.

5. Estimated date(s) and method of shipment:

June 26, 1989 through July 7, 1989.

Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of July 10, 1989.

6. Approximate number of days results required after lab receipt of samples:

Data package is due 14 days from date of receipt of the last sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

Analysis by CLP SOW Inorganic (7/87)--diskette deliverable at SMO discretion.

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

The sample to be used for laboratory QC will be collected with extra volume and will be clearly labelled "Do QC" on the SAS packing list. All samples for dissolved metals must be digested.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

All raw data, calculations, data sheets, blank results, duplicate results, SAS packing lists, copy of airbill, copy of analyst's logbooks, Chain-of-Custody forms, SAS Request forms and date of analysis for all parameters must be included, as well as, deliverables as per CLP--Inorganic (7/87) SOW are required in final data package.

The cover page and all sample report forms must be labelled with SAS and Task numbers, and EPA sample numbers as they appear on Chain-of Custody and other CLP paperwork.

10. Other (use additional sheets or attach supplementary information, as needed):

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.

Phone: (301) 433-8832

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
Inorganics	As per (7/87) CLP-SOW	

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Inorganics	As per (7/87) CLP-SOW	

14. Action Required if Limits are Exceeded

Inorganics--As per CLP-SOW 7/87

15. Request prepared by: Emily Olds

Date: May 10, 1989

16. Request reviewed by (CRL use only):

Date:

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.

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1. General description of analytical service requested:

   Quick turnaround analysis of 10 groundwater for full organics TCL (VOA, BNA, and Pest/PCB).

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   10 low concentration groundwater samples for CLP organics analyses (VOA, BNA, and Pesticide/PCB), plus 1 field duplicate, 1 field blank, and 1 trip blank (VOA only) for a total of 13 work units. See items 6, 7, 8, 9, 12, 13 and 14 for details.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

Superfund RI/FS ENFORCEMENT
Account Number

SAS Approved By:

4. Estimated date(s) of collection:

June 26, 1989 through July 7, 1989.

5. Estimated date(s) and method of shipment:

June 26, 1989 through July 7, 1989.

Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of July 10, 1989.

6. Approximate number of days results required after lab receipt of samples:

Data package is due 14 days from date of receipt of the last sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

Analysis by CLP SOW Organics (7/87)--diskette deliverable at SMO discretion.

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

The sample to be used for laboratory QC will be collected with extra volume and will be clearly labelled "Do QC" on the SAS packing list.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

All raw data, calculations, data sheets, blank results, duplicate results, SAS packing lists, copy of airbill, copy of analyst's logbooks, Chain-of-Custody forms, SAS Request forms and date of analysis for all parameters must be included, as well as, deliverables as per CLP--Organic (7/87) SOW are required in final data package.

The cover page and all sample report forms must be labelled with SAS and Task numbers, and EPA sample numbers as they appear on Chain-of Custody and other CLP paperwork.

10. Other (use additional sheets or attach supplementary information, as needed):

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.

Phone: (301) 433-8832

12. Data Requiremencs

Paramoter	Detection Limit	Precision Desired (+ or - Concentration)
Organics	As per (7/87) CLP-SOW	

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Organics	As per (7/87) CLP-SOW	

14. Action Required if Limits are Exceeded

Organics--As per CLP-SOW 7/87

15. Request prepared by: Emily Olds

Date: May 10, 1989

16. Request reviewed by (CRL use only):

Date:

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1. General description of analytical service requested:

   Quick turnaround analysis of 10 groundwater samples for Nitrite and Nitrate. Use EPA Method 353.2 (attachment) for this analysis.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   10 low concentration groundwater samples for Nitrite and Nitrate plus 1 duplicate, 1 blank, and 1 matrix-spiked sample for a total of 13 work units.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

   Superfund RI/FS Enforcement
   Account Number:

   SAS Approved By:

4. Estimated date(s) of collection:

   June 26, 1989 through July 7, 1989.

5. Estimated date(s) and method of shipment:

   June 26, 1989 through July 7, 1989.

   Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of July 10, 1989.

6. Approximate number of days results required after lab receipt of samples:

   Data packages due 14 days from date of receipt of the last sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

   Both Nitrate and Nitrite- EPA 353.2 - EPA March 1983, "Methods for Chemical Analysis of Water and Wastes."

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

   Lab must obtain and report a certified reference standard with its acceptance limits, lot number and SOW.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

   Each individual task as awarded must be submitted in a separate data package. The cover page and all sample report forms must be labelled with both SAS and Task numbers.

   Raw data, calculation, data sheets, blank results, duplicate results, Chain-of-Custody forms, SAS Request forms, standardization data, calibration curve data, external certified standard data, cadmium column reduction efficiency results, copy of SAS packing list, copy of airbill, and copy of Lab analyst's logbooks.

10. Other (use additional sheets or attach supplementary information, as needed):

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.
Phone: (301) 433-8832

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
Nitrate	50 ugN/l	± 20%
Nitrite	50 ugN/l	± 20%

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Blanks	1/20	Below Method Detection Limit
Duplicates	1/20	± 10% RPD
Matrix Spike	1/20	95% Confidence Interval
Externally Certified Standard Performance	1/batch	95% Confidence Interval
Cadmium Reduction Efficiency	1/20	90-110% Reduction

14. Action Required if Limits are Exceeded

Repeat QC sample in question; if results are still outside QC limits, reanalyze all samples for that parameter once more along with QC samples.

15. Request prepared by: Emily Olds

Date: May 10, 1989

16. Request reviewed by (CRL use only):

Date:

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1. General description of analytical service requested:

   Quick turnaround analysis of 10 groundwater samples for Sulfate, and Chloride. Use EPA Method 375.4 (attachment 1) for Sulfate, and EPA Method 325.3 (attachment 2) for Chloride. Plus certified reference sample obtained by lab and a check standard every 10 samples which consists of a mid-range standard.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   10 low concentration groundwater samples for the above plus 1 duplicate, 1 blank, and 1 matrix-spiked sample for a total of 13 work units. See items 6, 7, 8, 9, 10, 12, 13 and 14 for details.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

Superfund RI/FS Enforcement
Account Number:

SAS Approved By:

4. Estimated date(s) of collection:

June 26, 1989 through July 7, 1989.

5. Estimated date(s) and method of shipment:

June 26, 1989 through July 7, 1989.

Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of July 10, 1989. Friday shipments are a possibility.

6. Approximate number of days results required after lab receipt of samples:

Data packages must be delivered within 14 days from date of receipt of the last sample.

Sulfate and Chloride must be analyzed within 26 days of VTSR for each sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program): All Methods Attached

Sulfate - EPA 375.4 - EPA, March 1983. "Methods for Chemical Analysis of Water and Wastes."
Chloride - EPA 325.3 - " "

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

Include a 5 point calibration curve for chloride analysis in the range of the samples undergoing analysis. Lab must obtain and report a certified reference standard with its acceptance limits, lot number and SOW, and include a copy of the manufacturer's specifications with data deliverables.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

Each individual task as awarded must be submitted in a separate data package. The cover page and all sample report forms must be labelled with both SAS and Task numbers, and EPA sample numbers as they appear on Chain-of-Custody and CLP paperwork.

All raw data, calculations, data sheets, blank results, duplicate results, lab and EPA Chain-of-Custody forms, SAS Request forms, standardization data, calibration curve data, external certified standard data, cadmium column reduction, efficiency results, copy of SAS packing list, copy of airbill, and copy of Lab analyst's logbooks with date of analysis for each run and each parameter analyzed.

10. Other (use additional sheets or attach supplementary information, as needed):

Document all problems, troubleshooting and problem resolution in the case narrative.

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.
Phone: (301) 433-8832

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
Sulfate	5 mg/l	± 20%
Chloride	5 mg/l	± 20%

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Blanks	1 set for each parameter prepared	Below Method Detection Limit
Duplicates	1/20 per parameter	± 10% RPD
Matrix Spike	1/20 per paramater	95% Confidence Interval
Externally Certified Standard Performance	1/batch per paramater with every analytical run	95% Confidence Interval
Midrange Check Standard	1/batch(with every run)	± 10% RPD

14. Action Required if Limits are Exceeded

Blank- If blank values exceed MDL, after appropriate action to reduce blank to less than MDL, repeat all samples and QC.

Duplicate- If duplicate is out of limits, reanalyze duplicate pair. If still outside range, repeat analysis of all samples and QC once more.

Check Standard- If midrange check standard is outside limits, reprepare and reanalyze the check standard and all samples between check standards that exceed limits.

Matrix Spike- If matrix spike is outside limits, reprepare and reanalyze all associated samples.

Submit all data with a detailed description of problems and action taken to resolve problems. If problems persist, contact Region III for further instructions.

15. Request prepared by: Emily Olds

Date: May 10, 1989

16. Request reviewed by (CRL use only):

Date:

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.

U.S. Environmental Protection Agency
CLP Sample Management Office
209 Madison Street, Alexandria, VA 22313
PHONE: (703) 557-2490 or FTS 557-2490

SAS Number

SPECIAL ANALYTICAL SERVICES
Regional Request

☐ Regional Transmittal ☐ Telephone Request

A. EPA Region and Client: EPA Region III

B. Regional Representative: Colleen K. Walling

C. Telephone Number: (301) 266-9180

D. Date of Request:

E. Site Name: Army Creek Landfill Site
New Castle County, DE

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested:

   Quick turnaround analysis of 10 groundwater samples for Alkalinity, Acidity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS) and Total Organic Carbon (TOC). Use EPA Method 305.1 (attachment 1) for Acidity, EPA Method 310.1 (attachment 2) for Alkalinity, EPA Method 160.2 (attachment 3) for TSS, EPA Method 160.1 (attachment 4) for TDS, and EPA/COE Method CE-81-1-method 1 (attachment 5) for TOC.

   TOC samples will be filtered and acidified in the field.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   10 low concentration groundwater samples for the above plus 1 duplicate and 1 blank for a total of 12 work units. See items number 6, 7, 8, 9, 12, 13 and 14 for details.

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for Analysis and Site Account Number:

Superfund RI/FS Enforcement
Account Number:

SAS Approved By:

4. Estimated date(s) of collection:

June 26, 1989 through July 7, 1989.

5. Estimated date(s) and method of shipment:

June 26, 1989 through July 7, 1989.

Samples will be shipped daily by overnight air carrier. These dates are tentative and are dependent on project remaining on schedule. Sampling may continue into the week of June 10, 1989. Friday shipments are a possibility.

6. Approximate number of days results required after lab receipt of samples:

Data package due 14 days from date of receipt of the last sample for all parameters.

Alkalinity and Acidity samples must be analyzed within 13 days of VTSR. TSS and TDS must be analyzed within 6 days of VTSR. TOC must be analyzed within 48 hours of VTSR for each sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program): All Methods Attached

Alkalinity - EPA 310.1 - EPA, March 1983. "Methods for Chemical Analysis of Water and Wastes."
Acidity - EPA 305.1 - " "
TSS - EPA 160.2 - " "
TDS - EPA 160.1 - " "
TOC - EPA/COE CE-81-1--EPA/COE May 1981., "Procedures for Handling and Chemical Analysis of Sediment and Water Samples."

Alkalinity and Acidity- pH stock buffers, 7.0, 4.0 and 10.0, must be analyzed before each run, and readings must be documented and included in data package.

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

TDS and TSS- NBS certified Class "S" weights must be used to check the balance before each use. Results of balance check must be clearly reported, including date and time of check.

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9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

Each individual task as awarded must be submitted in a separate data package. The cover page and all sample report forms must be labelled with both SAS, Task numbers, and EPA sample numbers as they appear on Chain-Of-Custody and other CLP paperwork.

Raw data, calculation, data sheets, blank results, duplicate results, SAS packing list, copy of airbill, copy of analyst's logbooks, Chain-of-Custody forms, and SAS Request forms, lab custody record and date of analysis for all parameters must be included. Report forms must indicate analysis performed for each sample.

10. Other (use additional sheets or attach supplementary information, as needed):

Use case narrative for documenting problems encountered and problem resolution.

11. Name of sampling/shipping contact: Emily Olds, Gannett Fleming Environmental Engineers, Inc.
Phone: (301) 433-8832

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
Alkalinity	4 mg/l	± 20%
Acidity	10 mg/l	± 20%
TSS	4 mg/l	± 20%
TDS	10 mg/l	± 20%
TOC	20 mg/l	± 20%

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
Blanks	1 set for each parameter analyzed with every analytical run.	Below Method Detection Limit
Duplicates	1 per batch per parameter	± 20% RPD
Class "S" Weights	weigh each weight with each batch of samples analyzed	N/A
TOC certified standard	1 per analytical run minimum of one per 20	± 30% RPD
Calibrated pH meter	1 time per run for each buffer	Manufacturer's Specifications

Balance check-NBS Certified Class "S" weights	With every analytical run	Manufacturer's Specifications

14. Action Required if Limits are Exceeded

If duplicate is out of limit, reanalyze duplicate pair once more. If still out of limit, repeat analysis of all samples along with all QC samples once more. If blank or TOC certified standard is out of limit, reanalyze all samples after corrective action has been taken to reduce blank contamination to the acceptable limit. Note in narrative. If problems occur needing further resolution notify Region III.

5. Request prepared by: Emily Olds

Date: May 9, 1989.

16. Request reviewed by (CRL use only):

Date:

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.